

LONGEVITY RISK IN PORTFOLIOS OF INSURANCE

Jakina Boonchaay

5302042071

Master of Science Program in Finance (International Program) Faculty of Commerce
and Accountancy Thammasat University, Bangkok, Thailand

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ABSTRACT

This paper examines the uncertainty in life expectancy, by using Lee-Carter forecasting mortality model to predict mortality rate and predicted by autoregressive integrated moving average model (ARIMA). Follow the Box-Jenkins techniques, the forecast mortality rate can estimate the life expectancy. The predicted life expectancy tend to more than historical life expectancy, which reflect in market value of Annuity. The market value base on Thai mortality table tend to misestimated, for male one are undervalue, but for female one are overvalue. In addition, this paper find the effect of longevity risk and market risk in the fund of company. Under the condition that interest rate risk are controlled, CAR decrease when there exist of uncertainty in life expectancy, nevertheless the ratio will increase if there increase in the fraction of positive return on equity investment. Therefore, investment portfolio should invest in equity market for growth of capital adequacy than the minimum capital required. However, insurance company should consider risk and return of investment portfolio to support investment decision. The portfolio with higher value of CAR also gets the higher risk as well.

Keywords: Longevity Risk; Life Expectancy; Risk-Based Capital; Capital Adequacy Ratio